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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,092	08/07/2002	Stefan Cramer	204-032	4461

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EXAMINER	
NATALINI, JEFF WILLIAM	
ART UNIT	**PAPER NUMBER**
2858	

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,092	CRAMER ET AL.	
	Examiner	Art Unit	
	Jeff Natalini	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Objections

1. Claims 26 and 28 are objected to because of the following informalities:

- In the paragraph: "applying the time-expanded display ... ", where it says "applying the change in the known time expansion and taken into account in the evaluation of the profiles" doesn't read right, a suggested correction could be: "applying the change in the known time expansion, where the change is taken into account in the evaluation of the profiles".
- In regard to claim 28, in the paragraph "a scanning unit ... ", time--expanding should be changed to "time expanding" or "time-expanding".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 17-23 and 25-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over McEwan (5609059) in view of Okubo et al. (5973636).

In regard to claims 17, 26, and 28 McEwan discloses a method/apparatus comprising: a trigger generator for generating a transmission pulse at a pulse repetition frequency (fig 4 (46 or 55)) with a control signal (from fig 4 (40 or 53)) and a scanning trigger signal (fig 4 (78,77));

coupling said transmission pulse into a waveguide (col 3 line 40-42);

scanning generator for generating (fig 4 (78,77)) a reflected signal which is reflected back by a reflector in contact with the waveguide (col 3 line 30-38) , for time-expanded display as a reflection profile with scanning pulses repeated at a scanning frequency (col 4 line 35-38, fig 4 (72-display));

scanning unit (fig 4 (45,68,70,72,79)) that continuously obtains measured values, from said reflection profiles (col 9 line 45-48), that contain the distance of the reflector to a process terminal (col 3 line 33-38), with means to scan the reflected signal (The plate (18) continuously picks up the signal reflected from the surface level (23; col 7 line 62-65), so the plate is scanning the reflected signal);

in providing a interference free signal (col 7 line 33-42) if the reflection profile changes over time, the time change is known and taken into account for evaluation (col 4 line 25-38).

McEwan lacks a control unit using a specific algorithm for deciding the usability of said measured values, which from these values and the amount of interference calculates whether the reflection profile is free of interference wherein: the scanning frequency and pulse repetition frequency are varied and an amount of interference is determined from at least one measurement of the reflected profiles.

Okubo et al. discloses a control unit ((fig 23 (108))) with an algorithm and can calculate whether the reflection profile is free of interference (col 13 line 14-19); where the transmitted frequency is varied (col 4 line 53-59) (since the pulse repetition frequency and scanning frequency both have to do with signal transmission and the

McEwan reference teaches using both, it would be known in the art that both frequencies could be varied) and an amount of interference is determined from a measurement of the reflected profile (col 13 line 25 –31).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for McEwan to use an algorithm to determine if the profile is free of interference by varying the scanning frequency and pulse repetition frequency and measuring the amount of interference as taught by Okubo et al. in order to obtain a signal with less interference for increased accuracy (col 4 line 55-59).

In regard to claims 18, 21, 27, and 29, McEwan lacks wherein the algorithm comprises the following steps: varying said scanning frequency and said pulse repetition frequency if the amount of interference exceeds a predetermined threshold, wherein the varying is done with a voltage controlled oscillator; determining and assessing the amount of interference; repeating the varying of the frequencies and subsequent determining until the amount of interference is below said predetermined threshold.

Okubo et al. discloses wherein the algorithm comprises the following steps: varying said scanning frequency and said pulse repetition frequency (col 4 line 53-59) using a voltage controlled oscillator (fig 23 (114), col 13 line 32-34) if the amount of interference exceeds a predetermined threshold (col 13 line 14-19); determining and assessing the amount of interference (col 13 line 25-31); and this process will be performed multiple times if it is found that there is still interference present (col 14 line 18-20)

It would have been obvious to one with ordinary skill in the art at the time the invention was made for McEwan to have an algorithm that varies the scanning frequency and the pulse repetition frequency (with a voltage controlled oscillator) if the amount of interference exceeds a predetermined threshold then determining and assessing the amount of interference and repeating these steps until the amount of interference is below said predetermined threshold as taught by Okubo et al. in order to obtain a signal with less interference for increased accuracy (col 4 line 55-59).

In regard to claim 19, McEwan discloses a predetermined table which contains suitable frequencies for determining the variation in said scanning frequency and said pulse repetition frequency wherein the access to the table in linear (col 8 line 8-17).

In regard to claim 20, McEwan discloses selecting the scanning frequency and pulse repetition frequency from a frequency range for the purpose of changing the scanning frequency (col 9 line 37-47) and pulse repetition frequency (col 7 line 27-37).

In regard to claims 22 and 30, McEwan discloses providing a delay circuit supplied with a reference signal at pulse repetition frequency and generating an output signal (col 4 line 25-30); determining the delay in said output signal by a predetermined set-point delay value, with which the controllable delay circuit is controlled (col 4 line 34-38); and obtaining a scanning trigger signal from a transmission trigger signal by means of the controllable delay circuit (fig 4 (77, 53); col 9 line 53-65).

In regard to claim 23, McEwan lacks wherein the amount of interference is obtained by a comparison of the pulse associated with said reflected profiles with a predetermined reference pulse.

Okubo et al. discloses wherein the amount of interference is obtained by a comparison of the pulse associated with said reflected profiles with a predetermined reference pulse (col 13 line 25-31).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for McEwan to determine the amount of interference by a comparison of the reflected pulse with a reference pulse as taught by Okubo et al. in order to accurately detect any interference.

In regard to claim 25, 31, and 32, McEwan discloses wherein a regulator is supplied (fig 4 (50)), and another oscillator is included in the trigger generator forming an oscillator bank (fig 4 (78 and 40 now comprise the trigger generator)), wherein the scanning frequency upon a variation in the pulse repetition frequency is adapted such that the difference between the scanning frequency and the pulse repetition frequency does not exceed a predetermined range or is constant (col 9 line 53-65).

3. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over McEwan (5609059) in view of Okubo et al. (5973636) as applied to claim 17 above, and further in view of Lacey et al. (5793480).

McEwan and Okubo et al. lack wherein the amount of interference is obtained by a difference between the maximum and minimum deviation from a predetermined value.

Lacey et al. teaches wherein the amount of interference is obtained by a difference between the maximum and minimum deviation from a predetermined value (col 1 line 42-51).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for McEwan and Okubo et al. to determine interference by comparison of a known value to the maximum and minimum deviation as taught by Lacey et al. in order to determine the air bearing thickness of the signal (col 1 line 50-51).

Response to Arguments

4. All objections drawings, specification, and claims have been removed in light of the remarks and amendments filed April 19, 2005.

In response to applicant's argument that McEwan does not disclose the scanning of the reflected signal. It is respectfully pointed out McEwan does disclose means for scanning (18) the reflected signal. The plate (18) continuously picks up the signal reflected from the surface level (23; col 7 line 62-65), so the plate is scanning the reflected signal.

Because this means is disclosed in the McEwan reference, the combination of McEwan and Okubo et al. is deemed proper.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Natalini whose telephone number is 571-272-2266. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeff Natalini

V. Nguyen
7/07/2005
VINCENT Q. NGUYEN
PRIMARY EXAMINER